

## CLAIMS

What is claimed is:

1. A method for characterizing a quality of a network path, including a first segment and a second segment, the method comprising:
  - 5 accessing a first metric and a second metric,
    - wherein the first metric and the second metric are at least in part quality characterizations of a same plurality of one or more network applications,
    - the quality characterization characterizes a quality of the same plurality of one or more network applications running at one or more segment end-points,
    - the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters,
  - 10 the plurality of one or more network parameters include one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth,
  - 15 the first metric is at least partly the function of the same plurality of elementary network parameters of the first segment,
  - 20 the one or more segment end points include one or more end-points of the first segment,
  - the second metric is at least partly the function of the same plurality of elementary network parameters of the second segment, and
  - 25 the one or more segment end points include one or more end-points of the second segment; and
  - adding the first metric and the second metric to generate a third metric,
    - wherein the third metric is at least partly the function of the same plurality of one or more elementary network parameters of the network path,
  - 30 the one or more segment end points include one or more end-points of the network path, and

the third metric is a quality characterization of the same plurality of one or more applications.

2. The method of 1, further comprising:

5 prior to accessing the first or the second metric, generating at least one of the first metric and the second metric.

3. The method of 1, further comprising:

10 prior to accessing the first or the second metric, receiving at least one of the first metric and the second metric.

4. The method of claim 1, wherein at least one of the plurality of one or more network parameters is dynamic.

15 5. The method of claim 1, wherein at least one of the plurality of one or more network parameters is static.

6. The method of claim 1, wherein the plurality of one or more network applications include at least one of UDP and TCP applications.

20 7. The method of claim 6, wherein the plurality of one or more network applications include UDP applications.

25 8. The method of claim 7, wherein the plurality of one or more network applications include voice.

9. The method of claim 7, wherein the plurality of one or more network applications include video.

10. The method of claim 9, wherein the plurality of one or more network applications include video conferencing.

30 11. The method of claim 6, wherein the plurality of one or more network applications include TCP applications.

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12. The method of claim 11, wherein the plurality of one or more network applications include HTTP.
13. The method of claim 12, wherein the plurality of one or more network applications include HTTP/1.0.  
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14. The method of claim 12, wherein the plurality of one or more network applications include HTTP/1.1.
- 10 15. The method of claim 11, wherein the plurality of one or more network applications include ftp.
16. The method of claim 11, wherein the plurality of one or more network applications include telnet.  
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17. The method of claim 1, wherein the plurality of one or more network parameters include delay.
18. The method of claim 1, wherein the plurality of one or more network parameters include jitter.  
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19. The method of claim 1, wherein the plurality of one or more network parameters include loss.
- 25 20. The method of claim 1, wherein the plurality of one or more network parameters include currently available bandwidth.
21. The method of claim 1, wherein the plurality of one or more network parameters include intrinsic bandwidth.  
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22. The method of claim 1, wherein the metric includes non-performance related characteristics.

23. The method of claim 21, wherein the non-performance related characteristics includes pre-specified route preferences.

24. A network system, comprising:

5 a plurality of one or more network devices configured, such that if the network device is coupled to at least a network path including a first segment and a second segment, the plurality of one or more network devices performing:

accessing a first metric and a second metric,

wherein the first metric and the second metric are at least in part

10 quality characterizations of a same plurality of one or more network applications,

the quality characterization characterizes a quality of the same plurality of one or more network applications running at one or more segment end-points,

15 the first metric and the second metric are at least partly a function of a same plurality of one or more elementary network parameters,

the plurality of one or more network parameters include one or more of delay, jitter, loss, currently available bandwidth, and intrinsic bandwidth,

20 the first metric is at least partly the function of the same plurality of elementary network parameters of the first segment,

the one or more segment end points include one or more end-points of the first segment,

25 the second metric is at least partly the function of the same plurality of elementary network parameters of the second segment, and

the one or more segment end points include one or more end-points of the second segment; and

adding the first metric and the second metric to generate a third metric,

30 wherein the third metric is at least partly the function of the same plurality of one or more elementary network parameters of the network path,

the one or more segment end points include one or more end-points of the network path, and

the third metric is a quality characterization of the same plurality of one or more applications.

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25. The network system of 24, wherein the network device further performs: prior to accessing the first or the second metric, generating at least one of the first metric and the second metric.

10 26. The network system of 24, wherein the network device further performs: prior to accessing the first or the second metric, receiving at least one of the first metric and the second metric.

15 27. The network system of 24, wherein at least one of the plurality of one or more network parameters is dynamic.

28. The network system of 24, wherein at least one of the plurality of one or more network parameters is static.

20 29. The network system of 24, wherein the plurality of one or more network applications include at least one of UDP and TCP applications.

30. The network system of 29, wherein the plurality of one or more network applications include UDP applications.

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31. The network system of 30, wherein the plurality of one or more network applications include voice.

30 32. The network system of 30, wherein the plurality of one or more network applications include video.

33. The network system of 32, wherein the plurality of one or more network applications include video conferencing.

34. The network system of 29, wherein the plurality of one or more network applications include TCP applications.
- 5 35. The network system of 34, wherein the plurality of one or more network applications include HTTP.
36. The network system of 35, wherein the plurality of one or more network applications include HTTP/1.0.
- 10 37. The network system of 35, wherein the plurality of one or more network applications include HTTP/1.1.
38. The network system of 34, wherein the plurality of one or more network applications include ftp.
- 15 39. The network system of 34, wherein the plurality of one or more network applications include telnet.
40. The network system of 24, wherein the plurality of one or more network parameters include delay.
- 20 41. The network system of 24, wherein the plurality of one or more network parameters include jitter.
- 25 42. The network system of 24, wherein the plurality of one or more network parameters include loss.
43. The network system of 24, wherein the plurality of one or more network parameters include currently available bandwidth.
- 30 44. The network system of 24, wherein the plurality of one or more network parameters include intrinsic bandwidth.

45. The network system of 24, wherein the metric includes non-performance related characteristics.
46. The network system of claim 45, wherein the non-performance related characteristics includes pre-specified route preferences.
47. The network system of 24, further comprising:  
a plurality of one or more inputs adapted to be coupled to the network path; and  
10 a plurality of one or more outputs coupled to the plurality of one or more inputs,  
wherein responsive to a plurality of one or more packets arriving to the network device through the plurality of one or more inputs, the network device selects at least one output from the plurality of one or more outputs, and  
15 the at least one output is determined at least partly using at least one of the first metric, second metric, and third metric.